

McKinley, D. (2013, June 21). *How effectively are crowdsourcing websites supporting volunteer participation and quality contribution?* Presented at Hamilton City Library, Hamilton, New Zealand. Retrieved from <http://www.digitalglam.org/crowdsourcing/talks/>

How effectively are crowdsourcing websites supporting volunteer participation and quality contribution?

National Digital Forum regional barcamp
21 June 2013, Hamilton City Library, New Zealand

Donelle McKinley
PhD candidate School of Information Management
Victoria University of Wellington

donelle.mckinley@vuw.ac.nz

www.digitalglam.org

@donellemckinley

1. Introduction

I'm a PhD candidate in the School of Information Management at Victoria University. My research focuses on crowdsourcing in galleries, libraries, archives and museums (GLAMs) and the Humanities. Prior to postgraduate study I worked for an online learning provider, where I specialised in website optimization, search engine optimization and social media.

Today I hope to give you a better understanding of crowdsourcing, and the role of evaluation in the design, development and optimization of effective crowdsourcing websites.

Much of what I'm going to talk about is also applicable to GLAM websites and digital resources in general, so I hope you'll find it useful even if you're not involved in a crowdsourcing project.

2. Definition of crowdsourcing (short version)

While the concept of public participation in academic and cultural heritage projects isn't new, and earlier authors have written about the potential of the crowd, the term crowdsourcing was coined by Jeff Howe in 2006.

Crowdsourcing outsources tasks traditionally performed by specific individuals to a group of people or community through an open call. Howe (2009, p. 280) explains that crowdsourcing isn't a single strategy, but "an umbrella term for a highly varied group of approaches".

3. Definition of crowdsourcing (long version)

In 2012 a more comprehensive definition of crowdsourcing was put forward:

"Crowdsourcing is a type of participative online activity in which an individual, an institution, a non-profit organization, or company proposes to a group of individuals of varying knowledge, heterogeneity, and number, via a flexible open call, the voluntary undertaking of a task. The undertaking of the task, of variable complexity and modularity, and in which the crowd should participate bringing their work, money, knowledge and/or experience, always entails mutual benefit. The user will receive the satisfaction of a given type of need, be it economic, social recognition, self-esteem, or the development of individual skills, while the crowdsourcer will obtain and utilize to their advantage that what the user has brought to the venture, whose form will depend on the type of activity undertaken." (Estellés-Arolas & and González-Ladrón-de-Guevara, 2012)

McKinley, D. (2013, June 21). *How effectively are crowdsourcing websites supporting volunteer participation and quality contribution?* Presented at Hamilton City Library, Hamilton, New Zealand. Retrieved from <http://www.digitalglam.org/crowdsourcing/talks/>

4. Overview of GLAM and Humanities crowdsourcing (WTS home page)

In the past five years, an increasing number of Humanities scholars and cultural heritage institutions have been crowdsourcing to create and enhance online collections and resources more cost-effectively, enable research, and engage the wider community.

Some of the tasks volunteers are assisting with include descriptive tagging, geo-tagging, and identification of digitized objects, proofreading Optical Character Recognition (OCR) text, manuscript transcription, text encoding, translation, and data collection.

I'll be referring to a few of them today, and there is a selection of crowdsourcing projects listed on my website at <http://www.digitalglam.org/crowdsourcing/projects/>

5. Potential benefits of crowdsourcing for institutions

For the cultural heritage sector crowdsourcing “can continue a long standing tradition of volunteerism and involvement of citizens in the creation and continued development of public goods” (Owens, 2012). It can be seen as a way to market and stimulate interest in collections, and signal an institution's openness and approachability (Thogersen, 2012, p.37), while achieving goals that are otherwise too labour-intensive and financially unfeasible.

Crowdsourcing can also enable cultural heritage institutions to better reflect the diversity of visitors, tap into expertise outside the institution, and engage visitors in new ways (Newman, 2012; Simon, 2010; Smith-Yoshimura, 2012, p. 4). As Oomen and Aroyo (2011, 139) point out, not only can these new forms of collections usage lead to a deeper level of involvement with the collections, but these initiatives will also be of growing importance from a managerial and public relations perspective, as they impact on the visibility and relevance of cultural heritage institutions.

Similarly, crowdsourcing as a social research model offers a way to raise the profile of academic research (Causer & Wallace, 2012, para.1) and demonstrate relevance at a time when Humanities’ “social contract with society is being challenged” (Rockwell, 2012, p.151). Public participation in the creation and enhancement of digital resources is enabling new research questions to be explored, using new research and interpretation methods such as data visualisation, data mining and computational analysis.

McKinley, D. (2013, June 21). *How effectively are crowdsourcing websites supporting volunteer participation and quality contribution?* Presented at Hamilton City Library, Hamilton, New Zealand. Retrieved from <http://www.digitalglam.org/crowdsourcing/talks/>

6. Common motivations of volunteers

Mutual benefit is an essential component of crowdsourcing, and a number of project surveys have identified some common reasons why volunteers participate. These include the size of the challenge, the necessity for volunteer contribution, collaboration with prestigious institutions, contribution to research, education, mental stimulation, being part of a community, personal research interests, and enhancing a resource from which they will benefit (Holley, 2010; Simon, 2010, p. 195; Smith, 2011).

7. The potential of the crowd

So the potential benefits of crowdsourcing for the Humanities and GLAMs are significant, and there are plenty of reasons why volunteers might want to be involved. Understanding the factors that contribute to project success is important for crowdsourcing's continued adoption, efficient and effective implementation, and maximising its potential.

Website statistics shared by crowdsourcing project teams provide evidence that the potential of the crowd can be significant.

For example, in the first 51 days of the National Library of Finland project Digitalkoot there were 31, 816 visitors to the site but only 15% participated (Chronis and Sundell, 2011). Similarly, of the 1,207 online visitors who registered to participate in the first six months of University College of London's Transcribe Bentham project, only 21% did any transcription (Causier, Wallace & Tonra, 2012, p.126).

I'm not saying that these projects haven't been successful, but I wanted to demonstrate that there's considerable scope for increasing participation, and this relies heavily on how effectively the website converts online visitors to active participants.

Usability author Steve Krug (2006, p.162) talks about the "reservoir of goodwill" that visitors bring to a website, and explains that each problem they encounter lowers its level. The role of evaluation in the design, development and optimization of websites is to identify real and potential problems so that they may be remedied.

From a human-computer interaction (HCI) perspective, evaluation is integral to the design process (Rogers et al., 2011). This emphasis placed on evaluation in HCI literature, and user-centred design in particular, suggests that launching a crowdsourcing website based on unexamined assumptions risks misalignment with project objectives and user needs, and undermining the resources invested.

McKinley, D. (2013, June 21). *How effectively are crowdsourcing websites supporting volunteer participation and quality contribution?* Presented at Hamilton City Library, Hamilton, New Zealand. Retrieved from <http://www.digitalglam.org/crowdsourcing/talks/>

Taking an untested, “build it, they will come” approach to crowdsourcing website design could have negative implications for leveraging the momentum of short-term initiatives and the sustainability of long-term endeavours.

8. Three common design scenarios

User-centred design author Jesse Garrett (2011, p.156) observes that too often the decisions impacting on the user experience and effectiveness of a website aren’t made consciously.

He describes three common scenarios: the website either follows the structure of the underlying technology or the organisation, adheres to familiar conventions, or is the product of personal preference.

According to Garrett, the right approach is one in which no aspect of the user’s experience is left to chance, and design decisions are grounded in an understanding of the underlying issues at play.

9. How effectively does your website...?

Some of the questions you should be asking include:

- How effectively does the website define the project objectives?
- How effectively does it reflect likely motivations to participate?
- How effectively does the website align these motivations with incentives to participate?
- How effectively does it minimize sources of frustration and concern?

Evaluation will help to determine the effectiveness of a website and suggest ways in which it might be improved.

10. How are they impacting on the effectiveness of your website?

Some of the website elements that might be subjected to evaluation include content, language, readability, website navigation, arrangement of page elements, consistency, visual appearance, page load speed, and the number and complexity of processes to complete the desired action.

It’s also important to remember that a website should be considered “holistically as users do - an experience with a beginning, middle and end” (Powazek, 2002, p.40).

McKinley, D. (2013, June 21). *How effectively are crowdsourcing websites supporting volunteer participation and quality contribution?* Presented at Hamilton City Library, Hamilton, New Zealand. Retrieved from <http://www.digitalglam.org/crowdsourcing/talks/>

11. Design, development and optimization

Established authors in the field of HCI emphasise the importance of user testing and evaluation early in the design process, throughout development, and beyond the launch of the website (Garrett, 2011; Krug, 2006; Nielsen, 1999).

Some common approaches to the design and development of crowdsourcing software and websites, which support evaluation, include prototypes, pilots, soft-launches, and beta testing.

Prototype: an early sample or model built to test a concept or process

Pilot: a small-scale preliminary experiment conducted to evaluate feasibility, time, cost, adverse events, and improve design prior to the launch of a full-scale project

Soft-launch: the release of a website to a limited audience, in order to (beta) test or tweak a design before being launched to a wider audience

Beta testing: user testing by a limited audience to ensure the website/software has few faults or bugs, and gather user feedback

Optimization: increasing the percentage of visitors that fulfill the website objective

Once the website is launched to the general public, there remains plenty of scope to optimize the website in order to increase the percentage of online visitors who participate, and the number of volunteers who return.

12. User evaluation: A different kind of user engagement

Research on the social sustainability of digital collections and information services in academic and cultural heritage institutions emphasises the role of the user in design, development, and evaluation (Chowdhury, Landoni & Gibb, 2006; Ellis & Callahan, 2012; Marchionni, 2009). To a limited extent, this is being reflected in crowdsourcing case studies. Potential and active volunteers are contributing feedback on crowdsourcing software and websites via focus groups, surveys, usability testing and ongoing feedback channels.

13. Analytics: How is website design impacting on...?

User feedback can be supplemented with information based on website analytics and interaction statistics. Tracking this data over time can help project teams to understand how changes to the website could be impacting on participation. Free tools like Google Analytics and interaction logs will enable the project team to report on:

- The total number of online visitors
- Average number of visitors per month
- Time spent on site
- The number of online visitors who register to participate
- The number of online visitors who actually participate
- The number of abandoned and completed tasks
- The number of return visitors

14. Example: Trove OCR text correction (interface)

Let's look at some examples. Some of you will be familiar with the National Library of Australia project, which invites volunteers to correct the Optical Character Recognition (OCR) text of digitised historical newspapers in Trove. The work of Rose Holley, former project manager, is often cited by crowdsourcing researchers and project managers in the Humanities and GLAM sector as influential for project development.

15. Example: Trove OCR text correction (evaluation)

In her report "Many Hands Make Light Work" (2009), Holley explains how the user interface was evaluated throughout the project lifecycle. A representative sample of potential volunteers was invited to comment on a prototype, and tested the beta version before it was launched to the public for further feedback.

The interface was subjected to four rounds of user testing, including users being shown a screen and asked about how they would go about completing the task. Holley explains that this early feedback was very useful for developing the interface.

Over the course of five months, feedback on the beta version was gathered from over 600 users via a survey, an online contact form, direct observation of user activity, analytics, online comments, direct contact with users via email and phone. Users had many suggestions for functionality enhancements, which Holley describes in detail.

McKinley, D. (2013, June 21). *How effectively are crowdsourcing websites supporting volunteer participation and quality contribution?* Presented at Hamilton City Library, Hamilton, New Zealand. Retrieved from <http://www.digitalglam.org/crowdsourcing/talks/>

16. Example: Transcribe Bentham (interface)

Another project you may be familiar with is Transcribe Bentham at University College London, which invites volunteers to help transcribe and encode the manuscripts of Jeremy Bentham.

In the course of detailing their experiences of running Transcribe Bentham, Causer, Tonra & Wallace (2012) account for the design of the customized transcription tool and the user interface that supports it.

17. Example: Transcribe Bentham (evaluation)

The evaluation methods and tools they describe include beta testing, a user survey, website analytics, analysis of user interaction statistics, and comparisons with other studies of crowdsourcing volunteer behaviour.

The user survey found that some online visitors were dissuaded by the complexity of the task and aspects of the interface such as instructions and workflow. In response to this user feedback the project team introduced a WYSIWYG transcription tool, to make the task easier.

Volunteers have made other suggestions that have been implemented, such as providing samples of Bentham's handwriting and creating a page to list partially-transcribed manuscripts (Causer & Wallace, 2012, para.51).

Although the project team are confident that further improvements based on user feedback would result in the submission of a greater number of transcripts at a faster pace, project budget constraints have restricted further optimization (Causer, Tonra & Wallace, 2012, p.133).

18. Example: NZRED (UK-RED home page)

Now for an example a little closer to home. The New Zealand Reading Experience Database (NZ-RED) is a crowdsourced history of reading project being developed at Victoria University of Wellington.

Based on the UK project launched in 1996, the NZ-RED will collect reading experiences of New Zealanders from the nineteenth century to the present day. Volunteers will be invited to identify instances of reading in diaries, letters, biographies and memoirs, from private collections, libraries and archives, and contribute their discoveries to the online database.

McKinley, D. (2013, June 21). *How effectively are crowdsourcing websites supporting volunteer participation and quality contribution?* Presented at Hamilton City Library, Hamilton, New Zealand. Retrieved from <http://www.digitalglam.org/crowdsourcing/talks/>

Like the REDs being developed in Australia, Canada, and the Netherlands, work on the NZ-RED to date has been based on the UK-RED task interface template. This is currently a rather lengthy one-page online form.

Only previous versions of the UK-RED website had been subjected to limited usability testing, and no requirements documentation is available. This raised the question, “How effectively and efficiently is the UK-RED task interface supporting rich data collection and volunteer participation?”.

Rather than blindly adapt the UK-RED template for our purposes and hope for the best, I was keen to pursue this question. Earlier this year I conducted research to produce high-level functionality and usability requirements for a NZ-RED task interface, and determine the extent to which the UK-RED met these requirements. The findings will inform the design of a working prototype, to be developed in the next stage of the NZ-RED project.

19. Example: NZRED (UK-RED evaluation)

One of the methods I used to evaluate the usability of the UK-RED task interface was heuristic evaluation, which requires some expertise but minimal resources. It aims to identify any potential difficulties that might impact on the user experience, and report how these can be remedied in redevelopment.

In particular, I used a set of heuristics (or principles) recently developed by Petrie & Power (2012) to guide developers and evaluators of highly interactive websites, such as those requiring users to input information. Heuristic evaluation enabled me to identify thirty-two potential usability problems, related to interactivity, content, physical presentation and information architecture.

The results of the heuristic evaluation were supported by the usability problems identified by current and potential volunteers via an online survey. Suggestions to address these problems were based on an examination of recent crowdsourcing projects, and literature on crowdsourcing and human-computer interaction.

In the interests of time I won't go into more detail, but if you're interested in how I conducted the usability inspection and the results of the survey there's a link to the research report on my website.

20. Example: NZRED (requirements)

The outcome of my research was seven high-level functionality and usability requirements for the NZ-RED task interface: minimize user effort; support integration of the task with research processes; enable new visitors and contributors to understand what the task involves quickly and easily; support accurate and controlled data entry; be easy to use for people reasonably confident with the Web; support flexible, structured data entry; and support bilingual data entry. Based on the heuristic evaluation and the survey, the UK-RED task interface only partially meets four of the seven requirements.

The first takeaway here is that an existing crowdsourcing project template may not effectively serve the needs of your volunteers or your project objectives. The second takeaway is that without clear, testable requirements based on an understanding of user needs and project objectives, what will be your basis for assessment?

21. Challenges of website evaluation

By now I hope you have a better understanding of the role of evaluation in the design, development and optimization of crowdsourcing websites, but I know it's not all smooth sailing.

There is evidence that limited staff and funding is restricting the ability of some project teams to fully implement requirements and the enhancements suggested by evaluation.

Effective implementation of evaluation methods and analysis are also dependent on practitioners' knowledge and skills. Within Humanities and GLAM crowdsourcing project teams, those responsible for designing and developing websites range from organisational webmasters and university IT services staff, to contracted user interface designers and outsourced experts, so the level of expertise available to project teams is likely to vary considerably.

Organisational culture may also impact on evaluation. In his discussion of library websites, Michael Lascarides (2012, pp.104-105) observes that a common mistake is neglecting to set benchmarks, which undermines the ability to show return on investment to the decision makers in the organization.

McKinley, D. (2013, June 21). *How effectively are crowdsourcing websites supporting volunteer participation and quality contribution?* Presented at Hamilton City Library, Hamilton, New Zealand. Retrieved from <http://www.digitalglam.org/crowdsourcing/talks/>

With these challenges in mind I encourage you to consider the following observations. In their article “Prototyping as a Process for Improved User Experience with Library and Archives Websites”, Ellis & Callahan (2012) point out that when most Internet startups are short of both money and staff, there is little weight to the argument that cultural heritage institutions do not have the resources to benefit from methods that drive private sector innovation.

And returning to user-centred design author Jesse Garrett (2011, p.153), committing to providing a positive user experience “is not just a question of time and resources – it’s often a question of mindset”.

22. What could a more effective website mean for the project?

At the end of the day, a more effective website could mean that:

- More online visitors participate
- Tasks are completed more efficiently
- Tasks are completed with greater accuracy
- The task is more enjoyable
- Volunteers participate more often
- The project is more cost-effective
- More volunteers are willing to participate in future projects

23. Thanks

For references and other great reads visit <http://www.digitalglam.org/crowdsourcing/books/>

Presentation and slides will be available at <http://www.digitalglam.org/crowdsourcing/talks/>

For crowdsourcing research updates follow www.digitalglam.org @donellemckinley

McKinley, D. (2013, June 21). *How effectively are crowdsourcing websites supporting volunteer participation and quality contribution?* Presented at Hamilton City Library, Hamilton, New Zealand. Retrieved from <http://www.digitalglam.org/crowdsourcing/talks/>

References

- Causer, T., Wallace, V., & Tonra, J. (2012). Transcription maximized; expense minimized? Crowdsourcing and editing The Collected Works of Jeremy Bentham. *Literary and Linguistic Computing*, 27(2), 119–137. doi:10.1093/lc/fqs004
- Causer, Tim, & Wallace, V. (2012). Building A Volunteer Community: Results and Findings from Transcribe Bentham. *Digital Humanities Quarterly*, 6(2). Retrieved from <http://www.digitalhumanities.org/dhq/vol/6/2/000125/000125.html>
- Chowdhury, S., Landoni, M., & Gibb, F. (2006). Usability and impact of digital libraries. *Online Information Review*, 30(6), 656–680.
- Chronos, O., & Sundell, S. (2011). Digitalkoot: Making Old Archives Accessible Using Crowdsourcing. In *Association for the Advancement of Artificial Intelligence*. Presented at the Workshops at the Twenty-Fifth AAAI Conference on Artificial Intelligence. Retrieved from <http://cdn4.microtask.com/assets/download/chronos-sundell.pdf>
- Ellis, S., & Callahan, M. (2012). Prototyping as a Process for Improved User Experience with Library and Archives Websites. *The Code4Lib Journal*, (18). Retrieved from <http://journal.code4lib.org/articles/7394>
- Estellés-Arolas, E., & González-Ladrón-de-Guevara, F. (2012). Towards an integrated crowdsourcing definition. *Journal of Information Science*, 38(2), 189–200. doi:10.1177/0165551512437638
- Garrett, J. (2011). *The Elements of User Experience: User-centered design for the web*. USA: Aiga/New Riders.
- Holley, R. (2009). *Many Hands Make Light Work: Public Collaborative OCR Text Correction in Australian Historic Newspapers*. Australia: National Library of Australia. Retrieved from <http://www.nla.gov.au/openpublish/index.php/nlasp/article/view/1406/1688>
- Holley, R. (2010). Crowdsourcing: How and Why Should Libraries Do It? *D-Lib Magazine*, 16(3/4). doi:10.1045/march2010-holley
- Howe, J. (2009). *Crowdsourcing: why the power of the crowd is driving the future of business*. New York: Three Rivers Press.
- Krug, S. (2006). *Don't Make Me Think: A common sense approach to web usability* (2nd ed.). USA: New Riders.
- Lascarides, M. (2012). *Next-Gen Library Design*. Chicago: ALA Tech Source.
- Marchionni, P. (2009, October 30). Why Are Users So Useful? User Engagement and the Experience of the JISC Digitisation Programme. *Ariadne: Web Magazine for Information Professionals*, (61). Retrieved from <http://www.ariadne.ac.uk/issue61/marchionni>
- McKinley, D. (2013). *Functionality and Usability Requirements for a Crowdsourcing Task Interface that Supports Rich Data Collection and Volunteer Participation: A Case Study: The New Zealand Reading Experience Database*. Unpublished dissertation, Victoria University of Wellington, Wellington, New Zealand. Retrieved from <http://researcharchive.vuw.ac.nz/handle/10063/2674>
- Newman, J. (2012). Revisiting Archive Collections: Developing Models for Participatory Cataloguing. *Journal of the Society of Archivists*, 33(1), 57–73. doi:<http://dx.doi.org/10.1080/00379816.2012.666404>

- McKinley, D. (2013, June 21). *How effectively are crowdsourcing websites supporting volunteer participation and quality contribution?* Presented at Hamilton City Library, Hamilton, New Zealand. Retrieved from <http://www.digitalglam.org/crowdsourcing/talks/>
- Nielsen, J. (n.d.). Usability & UX Articles from Nielsen Norman Group. Retrieved April 30, 2013, from <http://www.nngroup.com/articles/>
- Oomen, J., & Aroyo, L. (2011). Crowdsourcing in the cultural heritage domain: opportunities and challenges. In *C&T '11 Proceedings of the 5th International Conference on Communities and Technologies*. (pp. 138–149). doi:10.1145/2103354.2103373
- Owens, T. (2012, May 20). The Crowd and The Library [Weblog post]. Retrieved from <http://www.trevorowens.org/2012/05/the-crowd-and-the-library/>
- Petrie, H., & Power, C. (2012). What do users really care about?: a comparison of usability problems found by users and experts on highly interactive websites. In *CHI '12 Proceedings of the 2012 ACM annual conference on Human Factors in Computing Systems*. (pp. 2107–2116). doi:10.1145/2207676.2208363
- Powazek, D. M. (2002). *Design for community: the art of connecting real people in virtual places*. Indianapolis, Ind.: New Riders.
- Rockwell, G. (2012). Crowdsourcing the Humanities: Social Research and Collaboration. In M. Deegan & W. McCarty (Eds.), *Collaborative Research in the Digital Humanities* (pp. 135–154). Farnham: Ashgate.
- Rogers, Y., Preece, J., & Sharp, H. (2011). *Interaction design*. Hoboken, N.J.; Chichester: Wiley.
- Simon, N. (2010). *The Participatory Museum*. California: Museum 2.0.
- Smith, A. (2011, May 26). *A Cautionary Tale*. Presented at the RunCoCo - Beyond Collections: Crowdsourcing for public engagement, University of Oxford. Retrieved from <http://podcasts.ox.ac.uk/series/runcoco-beyond-collections-crowdsourcing-public-engagement>
- Smith-Yoshimura, K. (2012). *Social Metadata for Libraries, Archives, and Museums: Executive Summary*. Ohio: OCLC. Retrieved from <http://www.oclc.org/research/publications/library/2012/2012-01r.html>
- Thogersen, R. (2012). *Crowdsourcing for image metadata: a comparison between game-generated tags and professional descriptors*. Høgskolen i Oslo og Akershus. Institutt for arkiv, bibliotek- og info.fag Universitetet i Tallinn Universitetet i Parma.